

We are committed to providing <u>accessible customer service</u>. If you need accessible formats or communications supports, please <u>contact us</u>.

Nous tenons à améliorer <u>l'accessibilité des services à la clientèle</u>. Si vous avez besoin de formats accessibles ou d'aide à la communication, veuillez <u>nous contacter</u>.



# TOPICED POLARIZATION HEAVY EQUIPMENT PROJECT MANAGEME TO BE DID MM

# **Good Mining Exploration Inc.**

Q2849 – Golden Target Project – C1 Zone Pole-Dipole Induced Polarization Survey

C Jason Ploeger, P.Geo.

March 17, 2021



#### Abstract

During the winter of 2021 a test pole-dipole survey was performed over a known zone. This was done to determine whether the known zone produced a measurable response.

Three weakly chargeable responses with coincident high resistivity, were identified striking away from the known zone. This indicates that the zones can be traced through IP.

**Good Mining Exploration Inc.** 

**Q2849 – Golden Target Project - C1 Zone Pole-Dipole Induced Polarization Survey** 

C Jason Ploeger, P.Geo.

March 17, 2021





# **TABLE OF CONTENTS**

1.		Survey Details	5
	1.1	Project Name	
	1.2	CLIENT	
	1.3	Overview	
	1.4	OBJECTIVE	5
	1.5	Survey & Physical Activities Undertaken	5
	1.6	SUMMARY OF RESULTS, CONCLUSIONS & RECOMMENDATIONS	6
	1.7	CO-ORDINATE SYSTEM	6
2.		SURVEY LOCATION DETAILS	7
	2.1	LOCATION	7
	2.2	Access	7
	2.3	MINING CLAIMS	8
	2.4	PROPERTY HISTORY	8
	2.5	GENERAL REGIONAL/LOCAL GEOLOGICAL SETTINGS	9
	2.6	TARGET OF INTEREST	10
3.		PLANNING	11
	3.1	EXPLORATION PERMIT/PLAN	11
	3.2	Survey Design	11
4.		SURVEY WORK UNDERTAKEN	12
	4.1	SUMMARY	12
	4.2	Survey Grid	12
	4.3	DATA ACQUISITION	12
	4.4	Survey Log	13
	4.5	Personnel	13
	4.6	FIELD NOTES: CONDITION AND CULTURE	13
	4.7	SAFETY	14
5.		INSTRUMENTATION & METHODS	17
	5.1	INSTRUMENTATION	17
	5.2	THEORETICAL BASIS	17
	5.3	SURVEY SPECIFICATIONS	17
6.		QUALITY CONTROL & PROCESSING	19
	6.1	FIELD QUALITY CONTROL	19
	6.2	Processing	19
7.		RESULTS, INTERPRETATION & CONCLUSIONS	20





7 1	D	~ ~ ~
/ 1	RESULTS	171
/ - 1	IXEQUETO	

#### LIST OF APPENDICES

APPENDIX A: STATEMENT OF QUALIFICATIONS APPENDIX B: INSTRUMENT SPECIFICATIONS

APPENDIX C: REFERENCES APPENDIX D: DIGITAL DATA

**APPENDIX E: LIST OF MAPS (IN MAP POCKET)** 

# **LIST OF TABLES AND FIGURES**

Figure 1: Location of the Golden Target Project - C1 Zone (Map data ©2021 Google Maps)	7
Figure 2: Operational Claim Map with Pole-Dipole IP Golden Target Project - C Zone	
Figure 3: Cut survey grid over Cell Fabric	11
Figure 4: Survey Grid Image (©2021 Google, Image ©2021 Maxar Technologie Image ©2021 CNES/Airbus)	
Figure 5: Pole-Dipole Configuration	18
Figure 6: Transmit Cycle Used	18
Figure 7: Pole-Dipole Pseudosections for line 0	20
Figure 8: Pole-Dipole Pseudosections for line 50	20
Figure 9: Pole-Dipole Pseudosections for line 100	21
Figure 10: Chargeability grid N=2 overlaying Google Earth. (©2021 Google, Image ©2021 CNES/Airbus)	
Figure 11: Resistivity grid N=2 overlaying Google Earth. (©2021 Google, Image ©2021 CNES/Airbus)	
Table 1: Survey and Physical Activity Details	5
Table 2: Mining Lands and Cells Information for the Golden Target Project - C1 Zone	
Table 4: Pole-Dipole IP Survey Log	
Table 4: CXS Induced Polarization Personnel	
Table 8: General Safety Topic Protocols	15
Table 9: Daily Field Safety Topics	16



#### 1. SURVEY DETAILS

#### 1.1 PROJECT NAME

This project is known as the Golden Target Project - C1 Zone.

#### 1.2 CLIENT

Good Mining Exploration Inc.

36 Mimosa Road Innisfil, ON L9S 1P8

#### 1.3 OVERVIEW

In the late winter of 2021, Canadian Exploration Services Limited (CXS) performed a conventional Pole-Dipole induced polarization survey for Good Mining Exploration Inc. over the Golden Target Project - C1 Zone in McCann Township. A total of 1.8-line kilometres pole-dipole IP surveying was performed.

#### 1.4 OBJECTIVE

The objective of the Pole-Dipole combination array IP survey was to determine whether the previously located mineralized vein system produced a geophysical response.

#### 1.5 SURVEY & PHYSICAL ACTIVITIES UNDERTAKEN

Survey/Physical Activity	Dates	Total Days in Field	Total Line Kilometres
Line cutting	March 4 to March 5, 2021	2	1.9
Pole-Dipole IP	March 10 to March 11, 2021	2	1.8

Table 1: Survey and Physical Activity Details





# 1.6 SUMMARY OF RESULTS, CONCLUSIONS & RECOMMENDATIONS

During the winter of 2021 a test pole-dipole survey was performed over a known zone. This was done to determine whether the known zone produced a measurable response.

Three weakly chargeable responses with coincident high resistivity were identified striking away from the known zone. This indicates that the zones can be traced through IP.

#### 1.7 CO-ORDINATE SYSTEM

Projection: UTM zone 17N

Datum: NAD83

UTM Coordinates near center of grid: 541250 Easting, 5365593 Northing



# 2. SURVEY LOCATION DETAILS

#### 2.1 LOCATION

The Golden Target Project - C1 Zone is located in McCann Township, approximately 8.5 kilometres west of Ramore, Ontario.

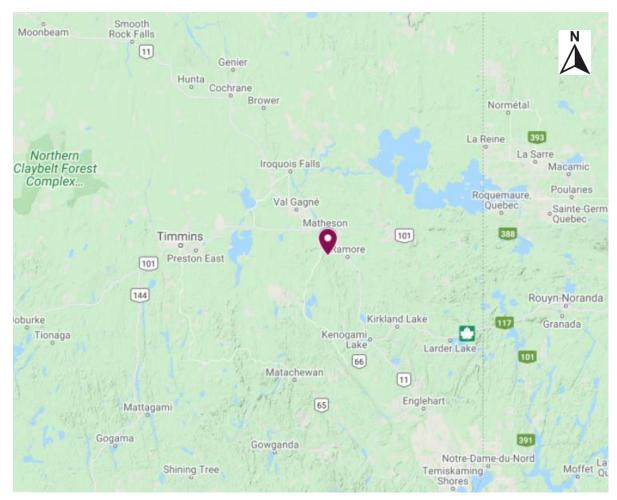


Figure 1: Location of the Golden Target Project - C1 Zone (Map data ©2021 Google Maps)

#### 2.2 Access

Access to the property was attained with a 4x4 truck via the Watabeag Road. The Watebeag Road was accessed from the town of Matheson and travelled for 13 km. Access to the survey site was then achieved by a 13km snowmachine ride via a forestry access road.





#### 2.3 MINING CLAIMS

The central survey area covers a portion of mining claims 293488, 306156 and 109861 located in McCann Townships, within the Larder Lake Mining Division.

Cell Number	Cell ID	Ownership of Land	Township
293488	42A08L269	Good Mining Exploration Inc.	McCann
306156	42A08L270	Good Mining Exploration Inc.	McCann
109861	42A08L271	Good Mining Exploration Inc.	McCann

Table 2: Mining Lands and Cells Information for the Golden Target Project - C1 Zone

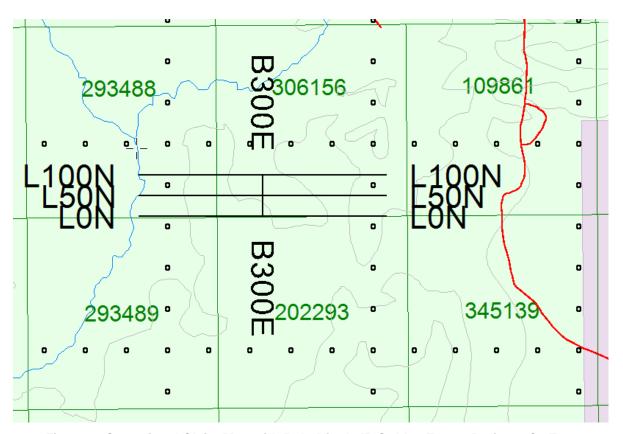


Figure 2: Operational Claim Map with Pole-Dipole IP Golden Target Project - C1 Zone

#### 2.4 PROPERTY HISTORY

Exploration work has been carried out on the survey area over the years. The following list describes details of previous geoscience work that has collected by the Mines and Minerals division and provided by OGSEarth (MNDM & OGSEarth, 2021).





- 2011: Nebu Resources Inc. (File 20000007130)

  Ground Geophysical Bowman, Hislop and McCann Townships

  Nebu contracted 60km of Pole-Dipole IP to be performed at 200m line spacings over a north south grid.
- 2014-2017: Good Mining Exploration Inc. (File 20000014167)

  Ground Geophysical, Grassroots Prospecting, Stripping, Diamond Drilling –

  Bowman and McCann Townships

This report covers a project which includes VLF EM, prospecting, stripping and diamond drilling of 53 holes totalling 6322.85m.

#### 2.5 GENERAL REGIONAL/LOCAL GEOLOGICAL SETTINGS

#### Regional Geology:

Taken from Frank Dusome – Assessment Work Credit Technical Report for the Bow-Mac Project – August 31, 2015.

The GMEI properties lie within the mafic (to intermediate) metavolcanic rocks and intrusions of the Bowman assemblage (Jackson and Fyon, (1991), now known as part of the Tisdale (2710-2704 Ma (Ayer, 2002)). The Tisdale includes a lithologically and structurally diverse sequence of deformed and metamorphosed volcanic and intrusive rocks.

The major host rock to the mineralization is a hornblende bearing gabbroic rock interpreted to be a dunitic differentiate is 2707 ± 3Ma (Corfu et al 1989). This intrusion was interpreted to be genetically related to komatiitic flows (Bowman Assemblage) which overlie the felsic metavolcanic rocks of the Deloro assemblage (Pyke, 1982). In this context, the 2707 Ma would 14 represent the maximum age of the komatiitic flows. This genetic relationship between the dated gabbroic rock and the komatiitic flow is questioned (A.H. Green, Geologist, Falconbridge 1990). Refinement of the stratigraphic correlation in this part of the Abitibi belt allow for the correlation of felsic metavolcanic rock at the top of the Deloro assemblage.

To the north the contact between the Deloro assemblage and the Porcupine and Tisdale assemblages is a ductile shear zone which is part of the Destor Porcupine Deformation Zone. The regional nature of the southern contact with the Upper Tisdale is not well constrained. Where examined in detail, this contact is interpreted to be conformable and stratigraphic.





# 2.6 TARGET OF INTEREST

A mineralized north-south vein system was previously identified in a small area of bedrock outcropping. These mineralized veins were targeted in hopes of identifying a geophysical signature for future exploration campaigns.



# 3. PLANNING

#### 3.1 EXPLORATION PERMIT/PLAN

The Pole-Dipole survey was performed over mining claims held by Good Mining Exploration Inc. under the required exploration plan PL-20-000130 for the entire area of the survey coverage.

#### 3.2 SURVEY DESIGN

The survey was designed to test the response of the known zone. Three, 600 meter lines, spaced 50m apart and centered over the vein system were established to facilitate the geophysical survey.

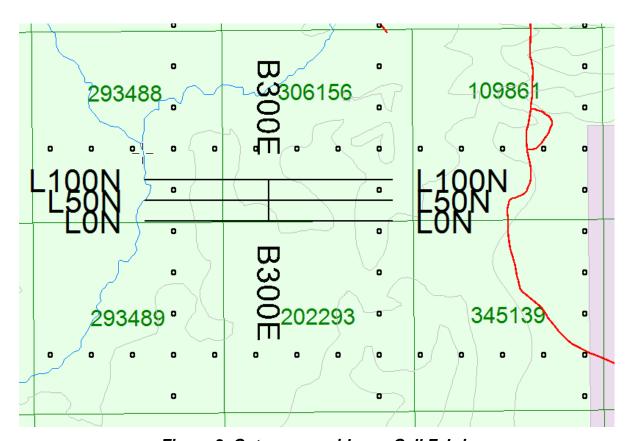


Figure 3: Cut survey grid over Cell Fabric



#### 4. SURVEY WORK UNDERTAKEN

#### 4.1 SUMMARY

CXS was contracted to perform a Pole-Dipole Induced Polarization survey over the Golden Target Project - C1 Zone. The CXS Geophysical Crew occupied the site for two days in March 2021. A total length of 1.8 kilometers for this survey occurring between March 10<sup>th</sup> and March 11<sup>th</sup>, 2021.

#### 4.2 SURVEY GRID

A test grid was designed over the mineralized zones to test the response of the zone. Three 600 meter, east-west lines spaced 50m apart were cut and cleared.



<u>Figure 4: Survey Grid Image (©2021 Google, Image ©2021 Maxar Technologies, Image ©2021 CNES/Airbus)</u>

#### 4.3 DATA ACQUISITION

CXS began setting up for the survey on March 10<sup>th</sup> and began acquiring data on March 11<sup>th</sup>, 2021. Current injection sites were injected along the grid lines at approximately 25-metre increments.



#### 4.4 SURVEY LOG

	Dipole-Dipole IP Survey Log				
Date	Description	Line	Min Extent	Max Extent	Total Survey (m)
10-Mar-21	Mobilize and locate survey area. Begin to setup infinite location and snakes on grid lines.				
	Dorform D. Dr. ID gur tou on lines ON FON	0N	0E	600E	600
	Perform P-Dp IP survey on lines 0N, 50N and 100N. Recover equipment and de-	50N	0E	600E	600
11-Mar-21	, ,	100N	0E	600E	600
1.8 km					
Total	otal 1.8 km				

Table 3: Pole-Dipole IP Survey Log

#### 4.5 PERSONNEL

Crew Member	Position	Resident	Province
Bruce Lavalley	Crew Chief / Receiver Operator	Dobie	Ontario
Claudia Moraga	IP Technician / Receiver Operator	Dobie	Ontario
Neil Jack	Transmitter Operator	Kirkland Lake	Ontario
Brody Johnston	IP Technician	Orillia	Ontario
Richard Bates	IP Technician	Virginiatown	Ontario
Joseph Emmell	IP Technician	Englehart	Ontario
Luc Martin	IP Technician	Englehart	Ontario
C Jason Ploeger P.Geo.	Senior Geophysicist	Larder Lake	Ontario

Table 4: CXS Induced Polarization Personnel

#### 4.6 FIELD NOTES: CONDITION AND CULTURE

The average weather over the two field days was 1.6°C with highs up to 12°C and lows down to -9°C overnight. Over March 10<sup>th</sup> and 11<sup>th</sup> it rained frequently with a total accumulation of 15mm. No culture was noted on the grid that would affect the data.



#### 4.7 SAFETY

Canadian Exploration Services Ltd prides itself in creating and maintaining a safe work environment for its employees. Each crew member is briefed on the jobsite location, equipment safety, standard operating procedures along with our health and safety manual. An emergency response plan is generated relating to the specific job and with the jobsite predominantly in the field, which is unpredictable, morning safety briefings are essential. Topics are generally chosen based off jobsite characteristics of the area, weather conditions, timing and crew experience. All possible topics discussed during a survey, dependent on field conditions and time of the year, are listed in the following table.

Safety Topic	Protocol
Active Work Site	Be aware of surrounding activities – drilling, mine monitoring, and traffic. Caution when working near roads, and post safety signs to alert passers-by of ongoing geophysical surveys.
ATV	Conduct circle check before operating an ATV. Ensure brakes and tires are in good working condition. Drive at reasonable speeds according to terrain to avoid accidents. The use of helmets is mandatory.
Extreme Temperatures	With temperatures down to -40, there is an increased risk of cold related injuries (i.e. frostbite, hypothermia). Dress accordingly and take breaks to warm up if necessary. Bring extra clothing to anticipate for possible drop in temperature throughout the day. With temperatures up to +30C, there is an increased risk of heat stroke. Keep hydrated throughout the day and in shaded areas if possible.
Communication	Check in with the crew leader or any crew member when working individually to inform the team of your safety and well-being.
Heavy Lifting	When lifting equipment individually, always lift with your legs rather than your back. Always ask fellow crew members for help when lifting or moving heavy and large equipment (i.e. transmitter, generator, snowmobile, etc.).
Hunting Seasons	There may be more traffic during hunting season. Be careful when crossing. Wear proper (high visibility) attire to avoid being mistaken for an animal in the bush.
Power Protocol	When in doubt, always assume that power is on and stay clear of survey circuits until confirmed otherwise.
Power Tools	Be alert when operating power tools – chainsaw, Tanaka, etc. Do not operate equipment when unsure of safety instructions for the specific tool.
Rain	Terrains may be slippery. Traverse carefully to avoid slipping,





Safety Topic	Protocol
	especially when ascending, descending, or walking along side
	of hills. When there is a chance of thunderstorm, notify person
	in-charge of transmitter when thunder is heard. Be extra careful
	with power protocol due to increased risk of shock. Bring extra
	clothing in case gear gets too wet and heavy.
Sharp Tools	Be careful when handling tools such as a machete and knives
	to avoid injuries. Inform another crew member of any injuries.
	Increased risk of hidden hazards with snow coverage. Proper
Slips, Trips and Falls	use of snowshoes is encouraged to avoid injuries from slipping,
	tripping, or falling. 3 points of contact is encouraged.
	Proper use of PPE (i.e. safety helmet, high visibility attire, etc.).
	Practice safety checks before operating snowmobiles. Ensure
Snowmobile	that engines and brakes are in good working condition. Ensure
Silowillobile	that oil, coolant, and gasoline levels are enough for distance of
	travel. Check that snowmobile is physically safe to operate (i.e.
	no broken parts).
	Conduct safety checks prior to operation of company trucks to
Truck and Trailer	ensure engines, brakes, tires, etc. are in good working condition
Truck and Tranci	prior to operating vehicle. Conduct circuit checks when mobiliz-
	ing and de-mobilizing trailers.
	Creeks, lakes, and swamps may not be fully frozen even under
Water Hazards	very low temperatures. The use of a stick or pole is encouraged
	for testing water bodies prior to crossing.
	Always be aware of surroundings, keeping an eye out for ani-
Wildlife	mals such as bears, moose and wolves. Carry bear spray when
	in the field during the summer.
	Snow accumulation, freezing rain and icy conditions create
Winter Driving	added road hazards. Road into field sites may be rough. Drive
	at appropriate speeds according to road conditions.

Table 5: General Safety Topic Protocols





# Emphasized daily topics discussed in the field for this project include:

Date	Safety Topic
March 10, 2021	Today's weather conditions are expected to create icy road conditions. The icy conditions will be worse on roads that are snow packed. Slow down and leave more room when following vehicles.
March 11, 2021	Overnight there was rain and freezing rain and the wind is supposed to pick up to 50+ km/hr. Pay attention to the conditions as ice buildup and weighted trees may fall. Use caution on icy surfaces.

Table 6: Daily Field Safety Topics



# 5. INSTRUMENTATION & METHODS

#### 5.1 INSTRUMENTATION<sup>1</sup>

A 10 channel Elrec Pro receiver was employed for this survey. The transmitter consisted of a GDDII (5kW) with a Honda 6500 as a power plant.

#### 5.2 THEORETICAL BASIS

Time domain IP (TD-IP) surveys involve measurement of the magnitude of the polarization voltage that results from the injection of pulsed current into the ground.

Two main mechanisms are known to be responsible for the IP effect although the exact causes are still poorly understood. The main mechanism in rocks containing metallic conductors is electrode polarization (overvoltage effect). This results from the buildup of charge on either side of conductive grains within the rock matrix as they block the flow of current. Upon removal of this current the ions responsible for the charge slowly diffuse back into the electrolyte (groundwater) and the potential difference across each grain slowly decays to zero.

The second mechanism, membrane polarization, results from a constriction of the flow of ions around narrow pore channels. It may also result from the excessive build up of positive ions around clay particles. This cloud of positive ions similarly blocks the passage of negative ions through pore spaces within the rock. Upon removal of the applied voltage the concentration of ions slowly returns to its original state resulting in the observed IP response.

In TD-IP, the current is usually applied in the form of a square waveform, with the polarization voltage being measured over a series of short time intervals after each current cut-off, following a short delay of approximately 0.5s. These readings are integrated to give the area under the decay curve. The integral voltage is divided by the observed steady voltage (the voltage due to the applied current, plus the polarization voltage) to give the apparent chargeability (Ma) measured in milliseconds. For a given charging period and integration time the measured apparent chargeability provides qualitative information on the subsurface geology.

The polarization voltage is measured using a pair of non-polarizing electrodes like those used in spontaneous potential measurements and other IP techniques.

#### 5.3 SURVEY SPECIFICATIONS

A total of 1.8-line kilometres of Pole-Dipole IP was performed between March 10<sup>th</sup> and 11<sup>th</sup>, 2021. This consisted of three 600 meter cut traverse lines.

<sup>&</sup>lt;sup>1</sup> Refer to appendix B for instrument specifications.





# **Pole-Dipole Array**

The pole-dipole combo survey configuration was used for this survey. This array consists of 11 mobile stainless steel read electrodes and one current electrode (C1). The eleven potential electrodes were connected to the receiver by means of the "Snake". The power locations C1 was maintained at a distance of 25m behind read electrode with C2 being located over a kilometer away. The array read electrodes had a 25m spacing to a depth of n=10. A two second transmit cycle time was used with a minimum number of receiver stacks of 8.

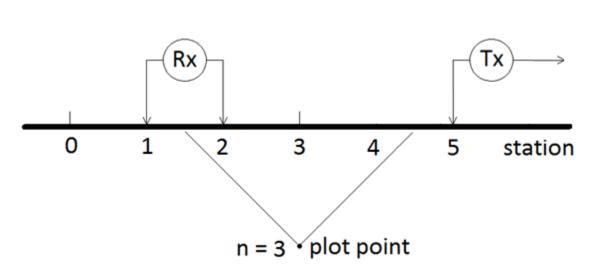


Figure 5: Pole-Dipole Configuration

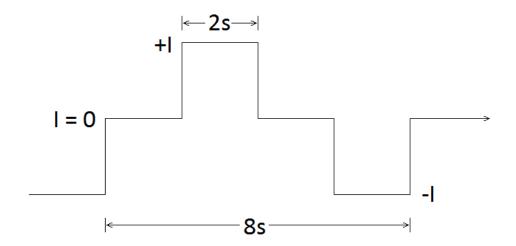


Figure 6: Transmit Cycle Used





# 6. QUALITY CONTROL & PROCESSING

#### 6.1 FIELD QUALITY CONTROL

Daily field quality control steps consisted of the following:

- 1. Ground resistances were checked for each dipole and corrective action taken if they were too high.
- 2. Each injection location was logged and recorded with a GPS.
- 3. Field repeats were collected based on the operator's observations.

#### 6.2 PROCESSING

In the office, processing of the data and quality control was done interchangeably. The steps included:

- 1. The data was imported into Prosys III and visually inspected for noise.
- 2. The GPS download and positions were confirmed on Google Earth along with spacings.
- 3. A Cole-Cole window selection was used for this survey. It was noted that the M1 appeared to be too close to the on-time reading.
- 4. The data was not altered, and any outlier data was posted to the pseudosections, however it was not used in the contouring.



# 7. RESULTS, INTERPRETATION & CONCLUSIONS

# 7.1 RESULTS

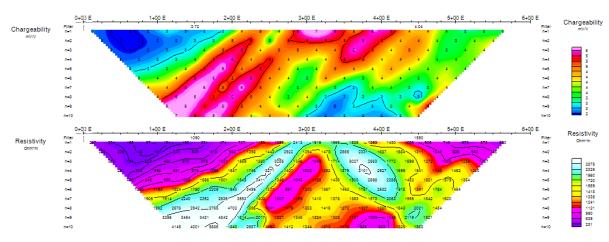


Figure 7: Pole-Dipole Pseudosections for line 0

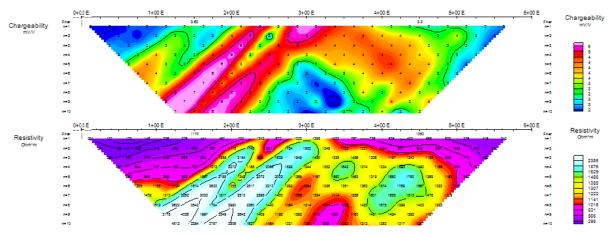


Figure 8: Pole-Dipole Pseudosections for line 50



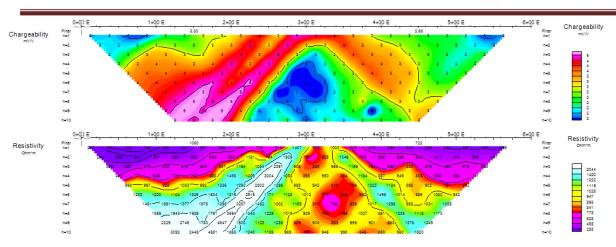


Figure 9: Pole-Dipole Pseudosections for line 100

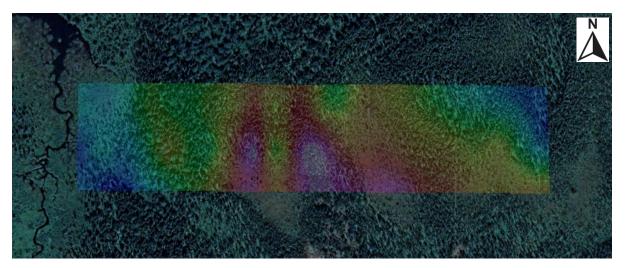


Figure 10: Chargeability grid N=2 overlaying Google Earth. (©2021 Google, Image ©2021 CNES/Airbus)

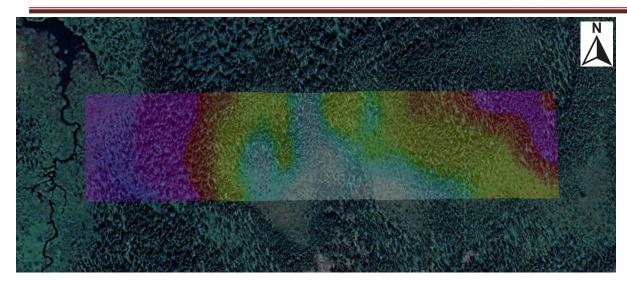


Figure 11: Resistivity grid N=2 overlaying Google Earth. (©2021 Google, Image ©2021 CNES/Airbus)

The resistivity indicates the survey is centered over a bedrock high, with the bedrock being shallow near the 300E mark. To the west the overburden appears to thicken more rapidly than to the east.

The strike of the trenched vein system appears to coincide with the elevated charge-ability/resistivity anomaly crossing each line of IP near 300E and most likely represents this extension of this vein system. Two additional similar linear anomalies appear to parallel the primary anomaly system. The first of these appears to parallel approximately 50m to the west and the second being a weaker signature 75m to 100m to the east.

The survey indicates three weakly chargeable anomalies with a coincident resistive high. These anomalies cross each line and strike at approximately 355 degrees. The anomalies also appear to strike away from the known showings and would be consistent with the expected response from the identified zones. Therefore, the survey appeared to characterize the signature of the zones with a weak chargeability response and an elevated resistivity response.

#### 7.2 RECOMMENDATIONS

The survey appears to have successfully identified the C1 Zone mineralization and its northward extension. This zone appears to be shallow and may be trenchable on line 0.

The east and west anomalies appear to subcrop at depth. The only way to test these anomalies is through drill testing. The west anomaly appears to be the stronger of the two and therefore merits more focus.





I would also recommend additional IP. This would be oriented east-west similar the test survey. With the area predominantly covered with overburden, IP should highlight additional zones of mineralization that are parallel to C1. Historically, the mineralization in the region has been oriented east-west, therefore a 3D survey could also be employed to target systems in both directions.





#### **APPENDIX A**

#### STATEMENT OF QUALIFICATIONS

- I, C. Jason Ploeger, hereby declare that:
- 1. I am a professional geophysicist with residence in Larder Lake, Ontario and am presently employed as a Geophysicist and Geophysical Manager of Canadian Exploration Services Ltd. of Larder Lake, Ontario.
- 2. I am a Practicing Member of the Association of Professional Geoscientists, with membership number 2172.
- 3. I graduated with a Bachelor of Science degree in geophysics from the University of Western Ontario, in London Ontario, in 1999.
- 4. I have practiced my profession continuously since graduation in Africa, Bulgaria, Canada, Mexico and Mongolia.
- 5. I am a member of the Ontario Prospectors Association, a Director of the Northern Prospectors Association and a member of the Society of Exploration Geophysicists.
- 6. I do not have nor expect an interest in the properties and securities of **Good Mining Exploration Inc..**
- 7. I am responsible for the final processing and validation of the survey results and the compilation of the presentation of this report. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.



C. Jason Ploeger, P.Geo., B.Sc. Geophysical Manager Canadian Exploration Services Ltd.

> Larder Lake, ON March 17, 2021



#### **APPENDIX B**

#### **INSTRUMENT SPECIFICATIONS**

#### Iris Elrec Pro Receiver



ELREC Pro unit with its graphic LCD screen

#### **Specifications**

- 10 CHANNELS / IP RECEIVER FOR MINERAL EXPLORATION
- 10 simultaneous dipoles
- 20 programmable chargeability windows
- High accuracy and sensitivity

**ELREC Pro:** this new receiver is a new compact and low consumption unit designed for high productivity Resistivity and Induced Polarization measurements. It features some high capabilities allowing to work in any field conditions.

**Reception dipoles:** the ten dipoles of the ELREC Pro offer an high productivity in the field for dipole-dipole, gradient or extended poly-pole arrays.

**Programmable windows:** beside classical arithmetic and logarithmic modes, ELREC Pro also offers a Cole-Cole mode and twenty fully programmable windows for a higher flexibility in the definition of the IP decay curve.

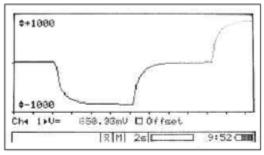
**IP display:** chargeability values and IP decay curves can be displayed in real time thanks to the large graphic LCD screen. Before data acquisition, the ELREC Pro can be used as a one channel graphic display, for monitoring the noise level and checking the primary voltage waveform, through a continuous display process.



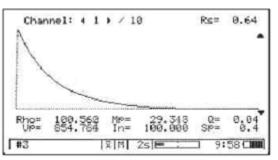


**Internal memory:** the memory can store up to 21 000 readings, each reading including the full set of parameters characterizing the measurements. The data are stored in flash memories not requiring any lithium battery for safeguard.

**Switching capability:** thanks to extension Switch Pro box(es) connected to the ELREC Pro unit, the 10 reception electrodes can be automatically switched to increase the productivity in-the-field.







Display of numeric values and IP decay curve during acquisition

#### FIELD LAY-OUT OF AN ELREC PRO UNIT

The ELREC Pro unit must be used with an external transmitter, such as a VIP transmitter.

The automatic synchronization (and re-synchronization at each new pulse) with the transmission signal, through a waveform recognition process, gives an high reliability of the measurement.

Before starting the measurement, a grounding resistance measuring process is automatically run; this allows to check that all the electrodes are properly connected to the receiver.

Extension Switch Pro box(es), with specific cables, can be connected to the ELREC Pro unit for an automatic switching of the reception electrodes per a pre-set sequence of measurements; these sequences have to be created and uploaded to the unit from the ELECTRE II software.

The use of such boxes allows to save time in case of the user needs to measure more than 10 levels of investigation or in case of large 2D or 3D acquisition.

#### DATA MANAGING

PROSYS software allows to download data from the unit. From this software, one can visualize graphically the apparent resistivity and the chargeability sections together with the IP decay curve of each data point. Then, one can process the data





(filter, insert topography, merge data files...) before exporting them to "txt" file or to interpretation software:

RES2DINV or RESIX software for pseudo-section inversion to true resistivity (and IP) 2D section.

RES3DINV software, for inversion to true resistivity (and IP) 3D data.

#### TECHNICAL SPECIFICATIONS

- Input voltage:
  - Max. for channel 1: 15 V
  - Max. for the sum from channel 2 to channel 10: 15 V
  - Protection: up to 800V
- Voltage measurement:
  - Accuracy: 0.2 % typical
  - Resolution: 1 μV
- Chargeability measurement:
  - Accuracy: 0.6 % typical
- Induced Polarization (chargeability) measured over to 20 automatic or user defined windows
- Input impedance: 100 MW
- Signal waveform: Time domain (ON+, OFF, ON-, OFF) with a pulse duration of 500 ms - 1s - 2s - 4s -8s
- Automatic synchronization and re-synchronization process on primary voltage signals
- Computation of apparent resistivity, average chargeability and standard deviation
- Noise reduction: automatic stacking number in relation with a given standard deviation value
- SP compensation through automatic linear drift correction
- 50 to 60Hz power line rejection
- Battery test

#### **GENERAL SPECIFICATIONS.**

- Data flash memory: more than 21 000 readings
- Serial link RS-232 for data download
- Power supply: internal rechargeable 12V, 7.2 Ah battery; optional external 12V standard car battery can be also used
- Weather proof
- · Shock resistant fiber-glass case
- Operating temperature: -20 °C to +70 °C
- Dimensions: 31 x 21 x 21 cm
- Weight: 6 kg



#### **APPENDIX B**

#### **GGD II 5kW**



#### **SPECIFICATIONS**

- Protection against short circuits even at 0 ohms
- Output Voltage range: 150V to 2400V in 14 steps
- Power source is a standard 220/240V, 20/60 Hz source
- Displays electrode contact, transmitting power and current

#### **ELECTRICAL CHARACTERISTICS**

- Standard Time Base of 2 seconds for time domain 2 seconds on, 2 seconds' off
- Optional Time Base of DC, 0.5, 1, 2, 4 or 8 seconds
- Output Current Range, 0.030 to 10A
- Output Voltage Range, 150 to 2400V in 14 steps
- Ability to Link 2 GDD transmitters to double power output

#### **CONTROLS**

- Switch ON/OFF
- Output Voltage Range Switch: 150V, 180V, 350V, 420V, 500V, 600V, 700V, 840V, 1000V, 1200V, 1400V, 1680V, 2000V and 2400V

#### **DISPLAYS**

Output Current LCD: reads +- 0.0010A





- Electrode Contact Displayed when not Transmitting
- Output Power Displayed when Transmitting
- Automatic Thermostat controlled LCD heater for LCD
- Total Protection Against Short Circuits
- Indicator Lamps Indicate Overloads

#### **GENERAL SPECIFICATIONS**

- Weatherproof
- Shock resistant pelican case
- Operating temperature: -40 °C to +65 °C
- Dimensions: 26 x 45 x 55 cm
- Weight: 40 kg





#### **APPENDIX C**

#### REFERENCES

Google, CNES/Airbus, 2021,

- Kenma, A., Binley, A., Ramirez, A. and Daily, W., 2000, Complex resistivity tomography for environmental applications. Chemical Engineering Journal, **77**, p. 11-18.
- Loke, M. H., 2018, Tutorial: 2-D and 3-D electrical imaging surveys. (available for download from www.geotomosoft.com)
- Loke, M. H., 1996-2018, Rapid 3-D Resistivity & IP inversion using the least-squares method (For 3-D surveys using the pole-pole, pole-dipole, dipole-dipole, rectangular, Wenner, Wenner-Schlumberger and non-conventional arrays) On land, aquatic, cross-borehole and time-lapse surveys. Geotomo Software Sdn Bhd.
- Loke, M.H. and Dahlin, T., 2010, Methods to Reduce Banding Effects in 3-D Resistivity Inversion. Near Surface 2010 16<sup>th</sup> European Meeting of Environmental and Engineering Geophysics 6 8 September 2010, Zurich, Switzerland, A16.
- MNDM & OGSEarth, 2021, OGSEarth: Ontario Ministry of Northern Development and Mines.





# **APPENDIX D**

# **DIGITAL DATA**

The digital data contains

- PDF copy of this report
- PDF copy of the maps
- Raw data in binary format
- Raw data in CSV format
- Text document of electrode GPS Coordinates
- Packed Oasis maps
- Oasis databases





# **APPENDIX E**

# LIST OF MAPS (IN MAP POCKET)

Posted Contoured Pseudo-Sections PDF Format (1:2500)

- 1) Q2849-GoodMining-C1-IP-PDp-0
- 2) Q2849-GoodMining-C1-IP-PDp-50
- 3) Q2849-GoodMining-C1-IP-PDp-100

Grid on Claim Map (1:2500)

- 4) Q2849-GoodMining-C1-IP-PDp-N2-Chr
- 5) Q2849-GoodMining-C1-IP-PDp-N2-Res

**TOTAL MAPS = 5** 

877.504.2345 | info@cxsltd.com | www.cxsltd.com

